REMARKS

The Office Action mailed January 24, 2007 has been received and reviewed. Claims 1-44 are currently pending in the application. Claims 1-44 stand rejected. Applicant has amended claims 1, 3, 4, 12, 23 and 34, and respectfully requests reconsideration of the application as amended herein.

Drawings

The Office Action objected to the drawings alleging they do not show every feature of the invention specified in the claims. Specifically, the Office Action states, "functions/elements (i.e. decoding) of claims 12-22 and 34-44 must be shown or the feature(s) canceled from the claim(s)." (Office Action, p. 2).

Applicant respectfully disagrees with the objection. Specifically, Applicant's independent claim 12 from which claims 13-22 depend and independent claim 34 from which claims 35-44 depend respectively recite, in part:

> Claim 12. A receiver … comprises…a processing subsystem … wherein ***the processing subsystem is configured to decode*** the initial data stream using at least two different spreading codes. (Emphasis added.)
>
> Claim 34. A ***method … comprising …decoding*** the initial data stream using at least two different spreading codes. (Emphasis added.)

Applicant's specification clearly points to the various elements and features of the invention at least at paragraph [0033] which recites:

> [0030] Considering the structure of ***FIGURE 2*** as implemented in a mobile station, ***the components of the system can be viewed as*** a transceiver subsystem coupled to ***a processing subsystem***, where the transceiver subsystem is responsible for receiving and transmitting data over a wireless channel and the processing subsystem is responsible for preparing and providing data to the transceiver subsystem for transmission and receiving and processing data that it gets from the transceiver subsystem. The transceiver subsystem could be considered to include transmit subsystem 222, receive subsystem 224, and antenna 226. ***The processing subsystem could be considered to include processor 228, memory 230, data source 232 and data output 234.*** (Emphasis added.)

Clearly elements 228, 230, 232 and 234 which "could be considered" to form the claimed "processing subsystem" are illustrated in at least Fig. 2. It is known that processors, such as processor 228, are configured according to executable software stored, for example, in memory 230. Accordingly, such a combination results in a "processing subsystem [] configured to decode" and a "method … comprising … decoding …" as illustrated in at least Fig. 2.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the objection.

35 U.S.C. § 112 Claim Rejections

Claims 3 and 12 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses this rejection, as hereinafter set forth.

The Office Action states:

> Regarding claim 3, claim 3 recites "each of the intermediate data streams", does applicant mean that there are a plurality of intermediate data streams or" [sic]. (Office Action, p. 3)
>
> Regarding claim 12, claim 12 recites "wherein the transmitter comprises" which is vague and indefinite, does applicant mean a transceiver or the receiver or etc. (Office Action, p. 3).

Applicant has amended claims 3 and 12 to be more definite and respectfully requests the rejections be withdrawn.

35 U.S.C. § 102 Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 6,219,374 to Kim et al.

Claims 1-6, 8, 12-14, 16-17, 19, 23-28, 30, 34-36, 38-39, and 41 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kim (U.S. Patent No. 6,219,374). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention

must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The 35 U.S.C. § 102(b) anticipation rejections of claims 1-6, 8, 12-14, 16-17, 19, 23-28, 30, 34-36, 38-39, and 41 are improper because the Kim reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims. Since the Kim reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims, the Kim reference cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of amended independent claim 1 and claims 2-6, 8 depending therefrom, amended independent claim 12 and claims 13-14, 16-17, 19 depending therefrom, amended independent claim 23 and claims 24-28, 30 depending therefrom, and amended independent claim 34 and claims 35-36, 38-39, 41 depending therefrom.

Applicant's invention as presently claimed in amended independent claim 1, from which claims 2-6, 8 depend, recites:

> 1. A transmitter operable to communicate with a receiver via a wireless communication channel, wherein the transmitter comprises:
>
> a processing subsystem; and
>
> a transmitter subsystem coupled to the processing subsystem;
>
> wherein the processing subsystem is ***configured to cover different portions of an initial data stream comprising an I/Q pair of modulated symbols to be transmitted on a first wireless communication channel with at least two different spreading codes***; and
>
> wherein the transmitter subsystem is configured to transmit a resulting final data stream on a first wireless communication channel. (Emphasis added.)

Applicant's invention as presently claimed in amended independent claim 12, from which claims 13-14, 16-17, 19 depend, recites:

> 12. A receiver operable to communicate with a transmitter via a wireless communication channel, wherein the receiver comprises:
>
> a processing subsystem; and
>
> a receiver subsystem coupled to the processing subsystem;
>
> wherein the receiver subsystem is configured to receive an initial data stream via a first wireless communication channel; and
>
> wherein the processing subsystem is ***configured to decode different portions of the initial data stream comprising an I/Q pair of modulated symbols using at least two different spreading codes***. (Emphasis added.)

Applicant's invention as presently claimed in amended independent claim 23, from which claims 24-28, 30 depend, recites:

> 23. A method for transmitting information via a wireless communication channel, comprising:
> providing an initial data stream to be transmitted on a first wireless communication channel;
> ***covering different portions of the initial data stream comprising an I/Q pair of modulated symbols with at least two different spreading codes***; and
> transmitting a resulting final data stream on a first wireless communication channel. (Emphasis added.)

Applicant's invention as presently claimed in amended independent claim 34, from which claims 35-36, 38-39, 41 depend, recites:

> 34. A method for decoding information received via a wireless communication channel, comprising:
> receiving an initial data stream via a first wireless communication channel; and
> ***decoding different portions of the initial data stream comprising an I/Q pair of modulated symbols using at least two different spreading codes***. (Emphasis added.)

At least Applicant's claimed elements of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) or "***decod[ing] different portions of the initial data stream comprising an I/Q pair of modulated symbols using at least two different spreading codes***" (claims 12 and 34) is not disclosed in the Kim reference. The Kim reference, like the hereafter-described Wiberg reference and the hereafter-described Proctor reference, generally discloses separately covering an I symbol stream with one Walsh code and a Q symbol stream with another Walsh code.

The Office Action alleges:

> Regarding claim 1, Kim discloses a transmitter operable to communicate with a receiver via a wireless communication channel, wherein the transmitter comprises: a processing subsystem (figure 1); wherein the processing subsystem is configured ***to cover an initial data stream to be transmitted on a first wireless communication channel with at least two different spreading codes (figure 1, col. 3 lines 26-49)***; and wherein the transmitter subsystem is configured to transmit a resulting final data stream on a first

> wireless communication channel (figure 1, col. 3 lines 26-49). (Office Action, p. 4; emphasis added).
>
> Regarding claim 12, Kim discloses a receiver operable to communicate with a transmitter via a wireless communication channel, wherein the transmitter comprises: a processing subsystem (figures 1, 3); and a receiver subsystem coupled to the processing subsystem (figures 1, 3); wherein the receiver subsystem is configured to receive an initial data stream via a first wireless communication channel (figures 1, 3, col 4 lines 10-64); and wherein the processing subsystem is configured ***to decode the initial data stream using at least two different spreading codes (figures 1, 3, col. 4 lines 10-64)***. (Office Action p. 5; emphasis added).
>
> Regarding claims 23-28, 30, 34-36, 38-39, and 41, the steps claimed as method is nothing more than restating the function of the specific components of the apparatus as claims 1-6, 8, 12-14, 16-17, 19 above and therefore, it is rejected as in considering the aforementioned rejection for the apparatus claims 1-6, 8, 12-14, 16-17, 19, respectively. (Office Action, p. 6).

The alleged disclosure of Applicant's claimed elements of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) or "***decod[ing] different portions of the initial data stream comprising an I/Q pair of modulated symbols using at least two different spreading codes***" (claims 12 and 34) is not supported by the actual disclosure of the Kim reference's recitation of "[t]he I channel signals … spreaded by a Walsh code $W^I(n)$ at the first mixer 104 and the Q channel is spreaded by a Walsh code $W^Q(n)$ at the second mixer 105." (Kim, col. 3, lines 35-38).

Specifically, and in contrast to Applicant's claimed invention, the Kim reference discloses:

> The I channel signals into which pilot symbols are periodically added is spreaded by a Walsh code $W^I(n)$ at the first mixer 104 and the Q channel is spreaded by a Walsh code $W^Q(n)$ at the second mixer 105. The I channel signal spreaded by a Walsh code is spreaded by PN code $C_k(n)$ at the third mixer 106 and the Q channel signal is spreaded by PN code C_k (n) at the fourth mixer 107. (Kim, col. 3, lines 35-41).
>
> From the [Equation 1], it can be seen that different data are transmitted to the I channel and Q channels, respectively, and the I channel and Q channels are quadrature-spreaded by different Walsh codes, respectively. (Kim, col. 3, line 65-co. 4, lines 2).

Clearly, the Kim reference discloses "different Walsh codes" <u>for the different I and Q channels</u>, however, nothing in the Kim reference discloses Applicant's invention as presently

claimed including the claim element of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) or "***decod[ing] different portions of the initial data stream comprising an I/Q pair of modulated symbols using at least two different spreading codes***" (claims 12 and 34).

Therefore, since at least Applicant's claimed element of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) or "***decod[ing] different portions of the initial data stream comprising an I/Q pair of modulated symbols using at least two different spreading codes***" (claims 12 and 34) is not disclosed in the Kim reference, the Kim reference cannot anticipate under 35 U.S.C. §102 Applicant's invention as presently claimed in amended independent claim 1 and claims 2-6, 8 depending therefrom, amended independent claim 12 and claims 13-14, 16-17, 19 depending therefrom, amended independent claim 23 and claims 24-28, 30 depending therefrom, and amended independent claim 34 and claims 35-36, 38-39, 41 depending therefrom.

Accordingly, such claims are allowable over the cited prior art and Applicant respectfully requests that such rejections be withdrawn.

Anticipation Rejection Based on U.S. Patent Appl. US 2002/0172264 to Wiberg et al.

Claims 1-10 and 23-32 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Wiberg (U.S. Patent Appl. US 2002/0172264). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The 35 U.S.C. § 102(e) anticipation rejections of claims 1-10 and 23-32 are improper because the Wiberg reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims. Since the Wiberg reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are

contained in the claims, the Wiberg reference cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of independent claim 1 and claims 2-10 depending therefrom and independent claim 23 and claims 24-32 depending therefrom.

Applicant's invention as presently claimed in amended independent claim 1, from which claims 2-10 depend, recites:

> 1. A transmitter operable to communicate with a receiver via a wireless communication channel, wherein the transmitter comprises:
>
> a processing subsystem; and
>
> a transmitter subsystem coupled to the processing subsystem;
>
> wherein the processing subsystem is ***configured to cover different portions of an initial data stream comprising an I/Q pair of modulated symbols to be transmitted on a first wireless communication channel with at least two different spreading codes***; and
>
> wherein the transmitter subsystem is configured to transmit a resulting final data stream on a first wireless communication channel. (Emphasis added.)

Applicant's invention as presently claimed in amended independent claim 23, from which claims 24-32 depend, recites:

> 23. A method for transmitting information via a wireless communication channel, comprising:
>
> providing an initial data stream to be transmitted on a first wireless communication channel;
>
> ***covering different portions of the initial data stream comprising an I/Q pair of modulated symbols with at least two different spreading codes***; and
>
> transmitting a resulting final data stream on a first wireless communication channel. (Emphasis added.)

At least Applicant's claimed elements of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) is not disclosed in the Wiberg reference. The Wiberg reference, like the Kim reference and the hereafter-described Proctor reference, also generally discloses a common channelization code C 230 wherein "[b]oth branches [I and Q **separately**] are spread (220/225) to the chip rate by a [common and not different] real-valued channelization code (C) 230" (Wiberg, para. 0025, lines 6-8) which is in contrast to Applicant's claim element of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23). The

Wiberg reference further discloses a "spreading sequence is done for ***each channel*** [not different portions of an initial data stream] individually using different channelization and scrambling codes [with] [e]ach spread sequence for each downlink physical channel [being] weighted [not covered]" (Wiberg, para. 0025, lines 14-18) which continues to be in contrast to Applicant's invention as presently claimed.

Therefore, since at least Applicant's claimed element of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) is not disclosed in the Wiberg reference, the Wiberg reference cannot anticipate under 35 U.S.C. §102 Applicant's invention as presently claimed in amended independent claim 1 and claims 2-10 depending therefrom and amended independent claim 23 and claims 24-32 depending therefrom.

Accordingly, such claims are allowable over the cited prior art and Applicant respectfully requests that such rejections be withdrawn.

Anticipation Rejection Based on U.S. Patent Appl. US 2003/0035466 to Proctor, Jr. et al.

Claims 1-6, 8-10, 23-28, and 30-32 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Proctor (U.S. Patent Appl. US 2003/0035466). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The 35 U.S.C. § 102(a) anticipation rejections of claims 1-6, 8-10, 23-28, and 30-32 are improper because the Proctor reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims. Since the Proctor reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims, the Proctor reference cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of independent claim 1 and claims 2-6, 8-10 depending therefrom and independent claim 23 and claims 24-28, 30-32 depending therefrom.

Applicant's invention as presently claimed in amended independent claim 1, from which claims 2-6, 8-10 depend, recites:

> 1. A transmitter operable to communicate with a receiver via a wireless communication channel, wherein the transmitter comprises:
>
> a processing subsystem; and
>
> a transmitter subsystem coupled to the processing subsystem;
>
> wherein the processing subsystem is ***configured to cover different portions of an initial data stream comprising an I/Q pair of modulated symbols to be transmitted on a first wireless communication channel with at least two different spreading codes***; and
>
> wherein the transmitter subsystem is configured to transmit a resulting final data stream on a first wireless communication channel. (Emphasis added.)

Applicant's invention as presently claimed in amended independent claim 23, from which claims 24-28, 30-32 depend, recites:

> 23. A method for transmitting information via a wireless communication channel, comprising:
>
> providing an initial data stream to be transmitted on a first wireless communication channel;
>
> ***covering different portions of the initial data stream comprising an I/Q pair of modulated symbols with at least two different spreading codes***; and
>
> transmitting a resulting final data stream on a first wireless communication channel. (Emphasis added.)

At least Applicant's claimed elements of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) is not disclosed in the Proctor reference. The Proctor reference, like the Kim reference and the Wiberg reference, also generally discloses splitting the signal into an I signal path and a Q signal path and then performing spreading individually to each of the separate paths which is in distinct contrast to Applicant's invention as presently claimed.

Specifically, the Proctor reference discloses "[a]s a first step, modulator 580 provides an in-phase (i) and quadrature (q) signal path to a first pair of multipliers 506-*I* and 506-*q*." (Proctor, para. 0058, lines 1-3). As clearly illustrated in the Proctor reference's Fig. 4, each of the ""i" modulation signal" and the ""q" modulation signal" are separately processed by multipliers 506, 512 and 508 which is in contrast to Applicant's claim element of "***cover[ing]***

different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes" (claims 1 and 23).

Therefore, since at least Applicant's claimed element of "***cover[ing] different portions of [an] initial data stream comprising an I/Q pair of modulated symbols [] with at least two different spreading codes***" (claims 1 and 23) is not disclosed in the Proctor reference, the Proctor reference cannot anticipate under 35 U.S.C. §102 Applicant's invention as presently claimed in amended independent claim 1 and claims 2-6, 8-10 depending therefrom and amended independent claim 23 and claims 24-28, 30-32 depending therefrom.

Accordingly, such claims are allowable over the cited prior art and Applicant respectfully requests that such rejections be withdrawn.

Claim Rejections under 35 U.S.C. § 103

Claims 9, 10, 15, 20, 21, 30, 31, 37, 42, and 43 were rejected as being unpatentable over U.S. Patent 6,219,374 to Kim et al in view of U.S. Patent 6,574,205 to Sato. This rejection is respectfully traversed. Applicants respectfully traverse this rejection, as hereinafter set forth.

The nonobviousness of independent claim 1 precludes a rejection of claims 9 and 10 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See* In re Fine, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicants request that the Examiner withdraw the rejection to amended independent claim 1 and claims 9 and 10 which depend therefrom.

The nonobviousness of independent claim 12 precludes a rejection of claims 15, 20 and 21 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See* In re Fine, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicants request that the Examiner withdraw the rejection to amended independent claim 12 and claims 15, 20 and 21 which depend therefrom.

The nonobviousness of independent claim 23 precludes a rejection of claims 30 and 31 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See* In re Fine, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicants request that the Examiner withdraw the rejection to amended independent claim 23 and claims 30 and 31 which depend therefrom.

The nonobviousness of independent claim 34 precludes a rejection of claims 37, 42 and 43 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See* In re Fine, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicants request that the Examiner withdraw the rejection to amended independent claim 34 and claims 37, 42 and 43 which depend therefrom.

CONCLUSION

Claims 1-44 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated : April 24, 2007

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